

STN Columbus

FULL ESTIMATED COST 0.21 0.21

FILE 'SCISEARCH' ENTERED AT 10:04:11 ON 31 MAY 2007
Copyright (c) 2007 The Thomson Corporation

* * * * * Welcome to STN International * * * * *

NEWS 1 Web Page for STN Seminar Schedule - N. America
NEWS 2 JAN 08 CHEMELIST enhanced with New Zealand Inventory of Chemicals
NEWS 3 JAN 16 CA/Capital Company Name Thesaurus enhanced and reloaded
NEWS 4 JAN 16 IPC version 2007.01 thesaurus available on STN
NEWS 5 JAN 16 WPIIDS/WPINDEX/WPIX enhanced with IPC 8 reclassification data
NEWS 6 JAN 22 CA/Capital updated with revised CAS roles
NEWS 7 JAN 22 CA/Capital enhanced with patent applications from India
NEWS 8 JAN 29 PHAR reloaded with new search and display fields
NEWS 9 JAN 29 CAS Registry Number crossover limit increased to 300,000 in multiple databases

NEWS 10 FEB 15 PATD/PASC enhanced with Drug Approval numbers
NEWS 11 FEB 15 RUSSIA/PAT enhanced with pre-1994 records
NEWS 12 FEB 23 KOREA/PAT enhanced with IPC 8 features and functionality

NEWS 13 FEB 26 MEDLINE reloaded with Clinical Trial Number field
NEWS 14 FEB 26 EMBASE enhanced with Clinical Trial Number field
NEWS 15 FEB 26 TOXCENTER enhanced with reloaded MEDLINE
NEWS 16 FEB 26 IFCIDB/IFIPAT/IFIUDB reloaded with enhancements
NEWS 17 FEB 26 CAS Registry Number crossover limit increased from 10,000 to 300,000 in multiple databases

NEWS 18 MAR 15 WPIIDS/WPIX enhanced with new FRAGITSTR display format
NEWS 19 MAR 16 CAS/REACT coverage extended
NEWS 20 MAR 20 MARPAT now updated daily
NEWS 21 MAR 22 IAPPI reloaded
NEWS 22 MAR 30 RD DISCLOSURE reloaded with enhancements

NEWS 23 APR 02 JICST-BPLUS removed from database clusters and STN
NEWS 24 APR 30 GENBANK reloaded and enhanced with Genome Project ID field
NEWS 25 APR 30 CHEMCATS enhanced with 1.2 million new records
NEWS 26 APR 30 CA/Capital enhanced with 1,870-1889 U.S. patent records
NEWS 27 APR 30 INPADOC replaced by INPAOCDB on STN
NEWS 28 MAY 01 New CAS web site launched
NEWS 29 MAY 08 CA/Capital Indian patent publication number format defined
NEWS 30 MAY 14 RD DISCLOSURE on STN Easy enhanced with new search and display fields

NEWS 31 MAY 21 BIOSIS reloaded and enhanced with archival data
NEWS 32 MAY 21 TOXCENTER enhanced with BIOSIS reloaded
NEWS 33 MAY 21 CA/Capital enhanced with additional kind codes for German patents
NEWS 34 MAY 22 CA/Capital enhanced with IPC reclassification in Japanese patents

NEWS EXPRESS NOVEMBER 10 CURRENT WINDOWS VERSION IS V8.0IC, CURRENT MACINTOSH VERSION IS V6.0IC (ENG) AND V6.0JC (JP), CURRENT AND CURRENT DISCOVER FILE IS DATED 25 SEPTEMBER 2006.

NEWS HOURS STN Operating Hours Plus Help Desk Availability
NEWS LOGIN Welcome Banner and News Items
NEWS IP8 For general information regarding STN implementation of IPC 8

Enter NEWS followed by the item number or name to see news on that specific topic.

All use of STN is subject to the provisions of the STN Customer Agreement. Please note that this agreement limits use to scientific research. Use for software development or design or implementation of commercial gateways or other similar uses is prohibited and may result in loss of user privileges and other penalties.

* * * * * STN Columbus * * * * *

FILE 'HOME' ENTERED AT 10:03:57 ON 31 MAY 2007
=> file scisearch
COST IN U.S. DOLLARS

FILE COVERS 1974 TO 25 May 2007 (20070525/ED)
SCISEARCH has been reloaded, see HELP LOAD for details.
=> s mifkin m?/au
L1 79 MIRKIN M?/AU
=> s bard a?/au
L2 817 BARD A?/AU
=> s 11 and 12
L3 27 L1 AND L2
=> s analytical chemistry/jt
L4 27764 ANALYTICAL CHEMISTRY/JT
(ANALYTICAL CHEMISTRY/JT)
L5 ANSWER 1 OF 3 SCISEARCH COPYRIGHT (c) 2007 The Thomson
Full Text
Corporation on STN
ACCESSION NUMBER: 1993-285169 SCISEARCH
THE GENUINE ARTICLE: K2659
TITLE: SCANNING ELECTROCHEMICAL MICROSCOPY .19. ION-SELECTIVE POTENTIOMETRIC MICROSCOPY
AUTHOR: HORROCKS, B. R. (Reprint), MIRKIN, M. V., PIERCE, D. T., BARD, A. J., NGUY, C., TOTH, K.
CORPORATE SOURCE: UNIV TEXAS, DEPT CHEM & BIOCHEM, AUSTIN, TX 78712; TECH UNIV BUDAPEST, INST GEN & ANALYT CHEM, H-1521 BUDAPEST, HUNGARY
COUNTRY OF AUTHOR: USA; HUNGARY
SOURCE: ANALYTICAL CHEMISTRY, (1 MAY 1993) Vol. 65, No. 9, pp. 1213-1224.
Last Updated on STN: 1994
ABSTRACT IS AVAILABLE IN THE ALI AND IALL FORMATS.
AB Potentiometric pH selective tips for scanning electrochemical microscopy (SECM) have been developed and used to image local pH changes in a variety of model chemical systems. Images of pH profiles around a platinum microelectrode during water reduction, a corroding disk of silver iodide in aqueous potassium cyanide, a disk of immobilized yeast cells in glucose hydrolyzing urea, and a disk of immobilized yeast cells in glucose solution were obtained. A simple method for fabricating antimony microdisk electrodes suitable for use in SECM is described. The general theory for SECM with potentiometric ion selective tips is also presented, assuming that the tip is a purely passive sensor. Reasonable agreement with theory was observed for relatively large tip to surface separations. The deviations observed at small separations were due to shielding of the surface by the tip and, consequently, were found to be much less significant for smaller tips.

L5 ANSWER 2 OF 3 SCISEARCH COPYRIGHT (c) 2007 The Thomson
Full Text
Corporation on STN
ACCESSION NUMBER: 1992-588288 SCISEARCH
THE GENUINE ARTICLE: JQ527

TITLE: SIMPLE ANALYSIS OF QUASI-REVERSIBLE STEADY-STATE VOLTAMMOMGRAMS
AUTHOR: MIRKIN M V (Reprint); BARD A J
CORPORATE SOURCE: UNIV TEXAS, DEPT CHEM & BIOCHEM, AUSTIN, TX 78712
COUNTRY OF AUTHOR: USA
SOURCE: ANALYTICAL CHEMISTRY, (1 OCT 1992) Vol. 64, No. 19, pp. 2293-2302.

PUBLISHER: AMER CHEMICAL SOC, 1155 16TH ST, NW, WASHINGTON, DC 20036.
DOCUMENT TYPE: Article; Journal
FILE SEGMENT: PHYS; Life
LANGUAGE: English
REFERENCE COUNT: 25
ENTRY DATE: 25
Entered STN: 1994
Last Updated on STN: 1994
Full Text: ANSWER 3 OF 3 SCISEARCH COPYRIGHT (c) 2007 The Thomson Corporation on STN
ACCESSION NUMBER: 1991-138385 SCISEARCH
THE GENUINE ARTICLE: FA188
TITLE: VOLAMMAMETRIC METHOD FOR THE DETERMINATION OF BOROHYDRIDE CONCENTRATION IN ALKALINE AQUEOUS-SOLUTIONS
AUTHOR: MIRKIN M V (Reprint); BARD A J
CORPORATE SOURCE: UNIV TEXAS, DEPT CHEM, AUSTIN, TX 78712
COUNTRY OF AUTHOR: USA
SOURCE: ANALYTICAL CHEMISTRY, (1 MAR 1991) Vol. 63, No. 5, pp. 532-533.

PUBLISHER: AMER CHEMICAL SOC, 1155 16TH ST, NW, WASHINGTON, DC 20036.
DOCUMENT TYPE: Note; Journal
FILE SEGMENT: PHYS; Life
LANGUAGE: English
REFERENCE COUNT: 8
ENTRY DATE: 25
Entered STN: 1994
Last Updated on STN: 1994

> sel 15-3 CIT
E1 THROUGH E1 ASSIGNED
=> s E1 17 "MIRKIN M V, 1991, V63, P532, ?/?RE
("MIRKIN M V, 1991, V63, P532, ?/?RE)
=> d 16 1-17 ibid abs
L6 ANSWER 1 OF 17 SCISEARCH COPYRIGHT (c) 2007 The Thomson Corporation on STN

ACCESSION NUMBER: 2007-347607 SCISEARCH
THE GENUINE ARTICLE: 143PN
TITLE: Evaluation of new ion exchange membranes for direct borohydride fuel cells
AUTHOR: Cheng H (Reprint); Scott K; Lovell K; Horsfall J A; Waring S C
CORPORATE SOURCE: Univ Newcastle Upon Tyne, Sch Chem Engrg & Adv Mat, Newcastle Upon Tyne NE1 7RU, Tyne & Wear, England (Reprint); Cranfield Univ, Dept Mat & Med Sci, Swindon SN6 8LA, Wilts, Eng land (Reprint); Cranfield Univ, Dept Mat & Med Sci, Swindon SN6 8LA, Wilts, Eng land
COUNTRY OF AUTHOR: England
SOURCE: JOURNAL OF MEMBRANE SCIENCE, (1 FEB 2007) Vol. 288, No. 1-2, pp. 168-174.
PUBLISHER: ELSEVIER SCIENCE BV, PO BOX 211, 1000 AE AMSTERDAM, NETHERLANDS.
DOCUMENT TYPE: Article; Journal
LANGUAGE: English
REFERENCE COUNT: 29
ENTRY DATE: 25
Entered STN: 5 Apr 2007
Last Updated on STN: 5 Apr 2007
ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB Several radiation grafted ion exchange membranes were prepared and evaluated in half-cells and direct borohydride fuel cells (DBFC) using voltammetric and steady-state polarisation techniques. The peak power density of 1.12 mW cm⁻² was achieved in a DBFC with an EBF₉-g-PSSA membrane using a solution of 1.32 M sodium borohydride and 2.5 M sodium hydroxide, 1 bar oxygen at 85 degrees C. The chemical and mechanical stabilities of the membranes were tested under various conditions. The membrane performance was compared to that obtained with the benchmark Nation(R) 117 membrane. The results are discussed based on the electrical, chemical, structural and mechanical properties of the membranes. (c) 2006 Elsevier B.V. All rights reserved.

L6 ANSWER 2 OF 17 SCISEARCH COPYRIGHT (c) 2007 The Thomson Corporation on STN
ACCESSION NUMBER: 2007-32826 SCISEARCH
THE GENUINE ARTICLE: 116SB
TITLE: The direct borohydride fuel cell for UUV propulsion power
AUTHOR: Lakernan J B; Rose A (Reprint); Pointon K D; Browning D J; Lovell K V; Waring S C; Horsfall J A
CORPORATE SOURCE: Dstl Porton Down, Phys Sci, Salisbury SP4 0QB, Wilts, England (Reprint); Cranfield Univ, Dept Mat & Med Sci, Swindon SN6 8LA, Wilts, England (Reprint); aros@dstl.gov.uk
COUNTRY OF AUTHOR: England
SOURCE: JOURNAL OF POWER SOURCES, (22 NOV 2006) Vol. 162, No. 2, Sp. Iss. S1, pp. 765-772.
PUBLISHER: ELSEVIER SCIENCE BV, PO BOX 211, 1000 AE AMSTERDAM, NETHERLANDS
DOCUMENT TYPE: Article; Journal
LANGUAGE: English
REFERENCE COUNT: 6
ENTRY DATE: 25
Entered STN: 11 Jan 2007
Last Updated on STN: 11 Jan 2007
ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB The development of proton exchange membrane and direct methanol fuel cell stacks is now well advanced for many applications. However, the significant performance advantages that these have over the battery for small to moderate scale applications will not be realised until a credible fuel source has been developed. The deficiencies of the PEMFC and DMFC can be eliminated by cation or anion-conducting membranes incorporated into a direct sodium borohydride fuel cell (DSBFC). The characterisation of membranes for the DSBFC is discussed. Novel membranes have been prepared which have resistance of an equal magnitude to the commercially available Nation(R) membrane. Crown Copyright 0 2005 Published by Elsevier B.V. All rights reserved.

L6 ANSWER 3 OF 17 SCISEARCH COPYRIGHT (c) 2007 The Thomson Corporation on STN

L6 ANSWER 5 OF 17 SCISEARCH COPYRIGHT (c) 2007 The Thomson Corporation on STN
 ACCESION NUMBER: 206-1094009 SCISEARCH
 THE GENUINE ARTICLE: 102HG

AUTHOR: Cheng H (Reprint); Scott K; Lovell K
 CORPORATE SOURCE: Univ Newcastle Upon Tyne, Sch Chem Engrg & Adv Mat, Newcastle Upon Tyne NE1 7RU, Tyne & Wear, England
 (Reprint); Cranfield Univ, Dept Mat & Med Sci, Swindon SN6 8LA, Wilts, England
 COUNTRY OF AUTHOR: England
 SOURCE: FUEL CELLS, (OCT 2006) Vol. 6, No. 5, pp. 367-375.
 ISSN: 1615-6464.

PUBLISHER: WILEY-V C H VERLAG GMBH, PO BOX 10 11 61, D-69451
 DOCUMENT TYPE: Article; Journal
 LANGUAGE: English
 REFERENCE COUNT: 21
 ENTRY DATE: 21
 Entered STN: 23 Nov 2006
 Last Updated on STN: 23 Nov 2006
 ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS*

AB The direct borohydride fuel cell (DBFC) has attracted increasing interest as a potential high power source for mobile and portable applications. Engineering design plays an important role in the development of the DBFC. This paper reports data for the selection of anode cathode and membrane materials for the DBFC. The best DBFC performance is achieved with a Au anode, a Pt cathode, and a 3541P ion exchange membrane. The use of non-precious catalysts, e.g., Ag, leads to promising results.

L6 ANSWER 4 OF 17 SCISEARCH COPYRIGHT (c) 2007 The Thomson Corporation on STN
 ACCESION NUMBER: 2006-975576 SCISEARCH
 THE GENUINE ARTICLE: 090B

AUTHOR: Deshmukh K; Santhanam K S V (Reprint); Ctr Mat Sci & Engrn, Rochester, NY 14623 USA (Reprint); Rochester Inst Technol, Dept Chem, Rochester, NY 14623 USA
 COUNTRY OF AUTHOR: USA
 SOURCE: JOURNAL OF POWER SOURCES, (22 SEP 2006) Vol. 159, No. 2, pp. 1084-1098
 ISSN: 0378-7753.

PUBLISHER: ELSEVIER SCIENCE BV, PO BOX 211, 1000 AE AMSTERDAM, NETHERLANDS.
 DOCUMENT TYPE: Article; Journal
 LANGUAGE: English
 REFERENCE COUNT: 41
 ENTRY DATE: 41
 Entered STN: 20 Oct 2006
 Last Updated on STN: 20 Oct 2006
 ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS*

AB A borohydride fuel cell has been constructed using a platinized multiwalled carbon nanotube (MWNT) anode and an air cathode having an anionic exchange membrane separating the anode and cathode. The MWNT was functionalized with carboxylic acid under nitric acid reflux. Platinum metal was subsequently incorporated into it by galvanostatic deposition. The platinized functionalized MWNT was characterized by thermogravimetric analysis, Fourier transform infrared spectrum, scanning electron microscope and X-ray diffraction. The fuel cell produced a voltage of 0.95 V low currents and a maximum power density of 44mWcm⁻² at room temperature in 10% sodium borohydride in a 4 M sodium hydroxide medium. Another borohydride fuel cell under identical conditions using carbon as the anode produced a cell voltage of 0.90 V and power density of about 20 mW cm⁻². The improved performance of the MWNT is attributed to the higher effective surface area and catalytic activity. (c) 2006 Elsevier B.V. All rights reserved.

L6 ANSWER 5 OF 17 SCISEARCH COPYRIGHT (c) 2007 The Thomson Corporation on STN
 ACCESION NUMBER: 206-838428 SCISEARCH
 THE GENUINE ARTICLE: 077JV

AUTHOR: Chatenet M (Reprint); Micoud F; Roche I; Chatenet E UJF, CNRS, ENSEEG, INPG, UMR 5631, LEPMI, BP 75, F-38402 St Martin Dheres, France (Reprint); UWF, CNRS, ENSEEG, INPG, UMR 5631, LEPMI, F-38402 St Martin Dheres, France
 COUNTRY OF AUTHOR: France
 SOURCE: ELECTROCHIMICA ACTA, (28 JUL 2006) Vol. 51, No. 25, pp. 5459-5467.
 ISSN: 0013-4686.

PUBLISHER: PERGAMON-ELSEVIER SCIENCE LTD, THE BOULEVARD LANE, KIDLINGTON, OXFORD OX5 1GB, ENGLAND.
 DOCUMENT TYPE: Article; Journal
 LANGUAGE: English
 REFERENCE COUNT: 35
 ENTRY DATE: 35
 Entered STN: 15 Sep 2006
 Last Updated on STN: 15 Sep 2006
 ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS*

AB The direct oxidation of sodium borohydride in concentrated sodium hydroxide medium has been studied by cyclic and linear voltammetry, chronocompometry and chronopotentiometry for silver and gold electrocatalysts either bulk and polycrystalline or nanodispersed over high area carbon blacks. Gold and silver yield rather complete utilisation of the reducer: around 7.5 electrons are delivered on these materials, versus 4 at the most for platinum as a result of the BH4- non-negligible hydrolysis taking place on this latter material. The kinetic parameters for the direct borohydride oxidation are better for gold than for silver. A strong influence of the ratio of sodium hydroxide versus sodium borohydride is found, whereas the theoretical stoichiometry does not forecast that eight hydroxide ions are needed for each borohydride ion. Our experimental results prove that a larger excess hydroxide ion is necessary in quasi-steady state conditions. When the above-mentioned ratio is unity (1 M NaOH and 1 M NaBH4), the tetrahydroborate ions direct oxidation is limited by the hydroxide concentration, and their hydrolysis is no longer negligible. The hydrolysis products are probably BH3OH- ions, for which gold displays a rather good oxidation activity. Additionally, silver, which is a weak BH4- oxidation electrocatalyst, exhibits the best activity of all the studied materials towards the BH4OH- direct oxidation.

Finally, carbon-supported gold nanoparticles seem promising as anode material to be used in direct borohydride fuel cells. (c) 2006 Elsevier Ltd. All rights reserved.

L6 ANSWER 6 OF 17 SCISEARCH COPYRIGHT (c) 2007 The Thomson Corporation on STN
 ACCESION NUMBER: 2006-450013 SCISEARCH
 THE GENUINE ARTICLE: 035LR

AUTHOR: de Leon C P; Walsh F C (Reprint); Fletcher D; Browning D J; Lakeman J B

COUNTRY OF AUTHOR: England
 SOURCE: JOURNAL OF POWER SOURCES, (21 APR 2006) Vol. 155, No. 2, pp. 172-181.
 ISSN: 0378-7753.

PUBLISHER: ELSEVIER SCIENCE BV, PO BOX 211, 1000 AE AMSTERDAM, NETHERLANDS.
 DOCUMENT TYPE: General Review; Journal
 LANGUAGE: English

REFERENCE COUNT: 58
ENTRY DATE: Entered STN: 11 May 2006

Last Updated on STN: 11 May 2006
ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB fuel cells is reviewed. Electrochemical reactions are considered together with the importance of operating parameters on cell performance. The advances in technology necessary for a widespread testing and more application of borohydride fuel cells are highlighted. A comparison of borohydride and methanol fuel cells shows that both system exhibit similar cell voltages, current and power densities despite that methanol cells operate at higher temperatures. The results are encouraging although more research is necessary, particularly in the synthesis of new electrocatalysts for borohydride oxidation. (c) 2006 Elsevier B.V. All rights reserved.

L6 ANSWER 7 OF 17 SCISEARCH COPYRIGHT (c) 2007 The Thomson

Full Text STN Corporation on STN

ACCESSION NUMBER: 2005-1233596 SCISEARCH

THE GENUINE ARTICLE: 989LC

TITLE: The electroanalytical determination of sodium borohydride using a gold electrode

AUTHOR: Celikkan H; Aydin H; Aksu M L (Reprint)
Gazi Univ, Gazi Educ Fac, Dept Chem Educ, TR-06500 Ankara, Turkey (Reprint); Gazi Univ, Arts & Sci Fac, Dept Chem, TR-06500 Ankara, Turkey

makus@gazi.edu.tr

COUNTRY OF AUTHOR: TURKEY

SOURCE: TURKISH JOURNAL OF CHEMISTRY, (2005) Vol. 29, No. 5, pp. 519-524

ISSN: 1300-0527.

PUBLISHER: SCIENTIFIC TECHNICAL RESEARCH COUNCIL TURKEY-TUBITAK, ATATURK BULVARI NO 221, KAVAKLIDERE, TR-06100 ANKARA, TURKEY.

DOCUMENT TYPE: Article; Journal

LANGUAGE: English

REFERENCE COUNT: 12

ENTRY DATE: Entered STN: 15 Dec 2005

Last Updated on STN: 29 Dec 2005
ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB It was shown that square wave voltammetry, a technique with a much lower detection limit, could be successfully used in the detection of borohydride formed in alkaline medium. A An electrode was found to be very suitable for this purpose. The detection limit was 3×10^{-5} M.

L6 ANSWER 8 OF 17 SCISEARCH COPYRIGHT (c) 2007 The Thomson

Full Text STN Corporation on STN

ACCESSION NUMBER: 2005-171184 SCISEARCH

THE GENUINE ARTICLE: 930HN

TITLE: Electrooxidation mechanisms and discharge characteristics of borohydride on different catalytic metal surfaces

AUTHOR: Dong H; Feng R X; Ai X P; Cao Y L; Yang H X (Reprint); Cha C S (Reprint); Wuhan Univ, Dept Chem, Wuhan 430072, Peoples R China

people@whu.edu.cn

COUNTRY OF AUTHOR: Peoples R China
JOURNAL OF PHYSICAL CHEMISTRY B, (2 JUN 2005) Vol. 109, No. 21, pp. 10896-10901.

ISSN: 1540-6106

AMER CHEMICAL SOC, 1155 16TH ST, NW, WASHINGTON, DC 20036 USA

DOCUMENT TYPE: Article; Journal

LANGUAGE: English

REFERENCE COUNT: 16

ENTRY DATE: Entered STN: 9 Jun 2005

Last Updated on STN: 9 Jun 2005
ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB The electrooxidation behavior of BH4- on electrocatalytic Pt, hydrolytically active Ni, and noncatalytic Au. electrodes were

comparatively reexamined and a more generalized reaction mechanism was proposed to explain the very different anodic properties of BH4- on the different metal electrodes. In this mechanism, the anodic behavior of BH4- are determined by a pair of conjugated reactions: electrochemical oxidation and chemical hydrolysis of BH4-. the relative rates of which depend on the anodic materials, applied potentials, and chemical states of the anodic surfaces. At Pt, surface, the electron number of BH4- oxidation increases with the increased potential polarization, while the actual electron number of BH4- oxidation on Ni electrode is 4 at most due to the poor electrocatalytic activity of the oxidized Ni surface and the strong catalytic activity of metallic Ni for chemical recombination of the adsorbed H intermediate. On the hydrolytic -inactive Au surface, the anodic reaction of BH4- can proceed predominately through direct electrochemical oxidation, delivering a near 8e discharge capacity.

L6 ANSWER 9 OF 17 SCISEARCH COPYRIGHT (c) 2007 The Thomson

Full Text

Corporation on STN

ACCESSION NUMBER: 2004-160546 SCISEARCH

THE GENUINE ARTICLE: 772XY

TITLE: Electrooxidation of borohydride on platinum and gold electrodes: implications for direct borohydride fuel cells

AUTHOR: Gyenge E (Reprint)

CORPORATE SOURCE: Univ British Columbia, Dept Chem & Biol Engn, 2216 Main Mall, Vancouver, BC V6T 1Z4, Canada (Reprint); Univ British Columbia, Dept Chem & Biol Engn, Vancouver, BC V6T 1Z4, Canada

COUNTRY OF AUTHOR: Canada

SOURCE: ELECTROCHIMICA ACTA, (1 MAR 2004) Vol. 49, No. 6, pp. 965-978.

ISSN: 0013-4686

PUBLISHER: PERGAMON-ELSEVIER SCIENCE LTD, THE BOULEVARD, LANGFORD LANE, KIDLINGTON, OXFORD OX5 1GB, ENGLAND.

DOCUMENT TYPE: Article; Journal

LANGUAGE: English

REFERENCE COUNT: 29

ENTRY DATE: 29 Feb 2004

Entered STN: 27 Feb 2004
Last Updated on STN: 27 Feb 2004
ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB The electrochemical oxidation of BH4- in 2 M NaOH on Pt and An (i.e. catalytic and non-catalytic electrodes, respectively, for BH4- hydrolysis accompanied by H2 evolution) has been studied by cyclic voltammetry, chrono-techniques (i.e., potentiometry, coulometry) and electrochemical impedance spectroscopy. In the case of Pt, the cyclic voltammetry behaviour of BH4- is influenced by both, the catalytic hydrolysis of BH4- yielding H2 (followed by electrooxidation of the latter at peak potentials between 0.7 and -0.9 V versus Ag/AgCl, KClstd) and direct oxidation of BH4- at more positive potentials, i.e., between -0.15 and -0.05 V. Thioure (TU, 1.5 x 10^-3 M) was an effective inhibitor of the catalytic hydrolysis associated with BH4- electrooxidation on Pt. Therefore, in the presence of TU, only the direct oxidation of BH4- has been detected, with peak potentials between -0.2 and 0 V. It is proposed that TU could improve the BH4- utilization efficiency and the coulombic efficiency of direct borohydride fuel cells using catalytic anodes. The electrooxidation of BH4- on Pt/TU is an overall four-electron process, instead of the maximum eight electrons reported for Au, and it is affected by adsorbed species such as BH4- (fractional surface coverage similar to 0.3), TU and possibly reaction intermediates.

L6 ANSWER 10 OF 17 SCISEARCH COPYRIGHT (c) 2007 The Thomson

Full Text

Corporation on STN

ACCESSION NUMBER: 1999-509928 SCISEARCH

THE GENUINE ARTICLE: 211CU

TITLE: Inexpensive, in-situ monitoring of borohydride concentrations

AUTHOR: Amendola S; Onnerud P; Kelly M T; Binder M (Reprint)

CORPORATE SOURCE: Millennium Cell Co, 8 Cedar Brook Dr, Cranbury, NJ 08512 USA (Reprint); Millennium Cell Co, Cranbury, NJ 08512 USA (Reprint); USA (Reprint); Elsevier Ltd. All rights reserved.

SOURCE: TALANTH, (14 JUN 1999) Vol. 49, No. 2, pp. 267-270
 ISSN: 0039-9140
 PUBLISHER: ELSEVIER SCIENCE BV, PO BOX 211, 1000 AE AMSTERDAM, NETHERLANDS
 DOCUMENT TYPE: Article; Journal Article
 LANGUAGE: English
 REFERENCE COUNT: 4
 ENTRY DATE: 4

Entered STN: 1999
 Last Updated on STN: 1999
 Abstract is available in the All and IALL formats.
 *ABSTRACT: Non-destructive, in-situ detection of 10^{-3} to 10^{-4} M borohydride ions in aqueous alkaline solutions containing borates can be easily rapidly accomplished by simply measuring open circuit potentials of selected metals (relative to a suitable reference) immersed in these solutions. (C) 1999 Elsevier Science B.V. All rights reserved.

L6 ANSWER 11 OF 17 SCISEARCH COPYRIGHT (c) 2007 The Thomson Full Text Corporation on STN
 ACCESSION NUMBER: 1998-950448 SCISEARCH
 THE GENUINE ARTICLE: 1476V
 TITLE: Electrosynthesis attempts of tetrahydridoborates
 AUTHOR: Gygene E L (Reprint); Oloman C W
 CORPORATE SOURCE: Univ British Columbia, Dept Chem Engrn, Vancouver, B 124, Canada (Reprint)
 COUNTRY OF AUTHOR: Canada
 SOURCE: JOURNAL OF APPLIED ELECTROCHEMISTRY, (OCT 1998) Vol. No. 10, pp. 1147-1151.
 ISSN: 0021-891X.
 PUBLISHER: KLUWER ACADEMIC PUBL, VAN GODWIJKSTRAAT 30, 3311 DORDRECHT NETHERLANDS.
 DOCUMENT TYPE: Article; Journal Article
 LANGUAGE: English
 REFERENCE COUNT: 24
 ENTRY DATE: 24

Entered STN: 1998
 Last Updated on STN: 1998
 Abstract is available in the All and IALL formats.
 *ABSTRACT: Scanning electrochemical microscopy .35. Determination of diffusion coefficients and concentrations of Ru (NH3)6(3+) and methylene blue in polyarylamide by chronoamperometry at ultramicrodisk electrodes
 PYO M (Reprint); Bard A J
 UNIV TEXAS, DEPT CHEM & BIOCHEM, AUSTIN, TX 78712
 ELECTROCHIMICA ACTA, (1997) Vol. 42, No. 20-22, pp. 3077-3083.
 ISSN: 0013-4686.
 PEGAMON-ELSEVIER SCIENCE LTD, THE BOULEVARD, LANGFORD, LANE, KIDLINGTON, OXFORD, ENGLAND OX5 1GB.
 PUBLISHER: Article; Journal Article
 DOCUMENT TYPE: Article; Journal Article
 FILE SEGMENT: PHYS
 LANGUAGE: English
 REFERENCE COUNT: 22
 ENTRY DATE: 22

Entered STN: 1997
 Last Updated on STN: 1997
 Abstract is available in the All and IALL formats.
 *ABSTRACT: The chronoamperometric response at an ultramicrodisk electrode (diameter = 25 μ m) inserted into polycrylamide (PAM) gel films containing reducible electroactive species (Ru(NH3)6(3+), and methylene blue (MB)) was used to determine the diffusion coefficients (D) and concentrations (C) of these species using a previously proposed treatment of the ratio of transient and steady-state currents. The diffusion coefficients obtained in film were slightly smaller ($75\text{-}95\%$) than the values for the same species in solution demonstrating that the polymer environment is mainly an aqueous one containing large polymer molecules. The calculated concentrations were in good agreement with those use cast the films. Complexes of MB with DNA were also examined in solution.

and in a PAAM him. The diffusion coefficients in both cases were significantly smaller (similar to 23%) than those of MA alone. The results indicate that, with some limitations, the chronoamperometric response of films probed with an SPCM tip can be used to determine both D and C with knowledge of only the ultramicrodisk radius. (C) 1997 Elsevier Science Ltd.

L6 ANSWER 13 OF 17 SCISEARCH COPYRIGHT (c) 2007 The Thomson Full Text Corporation on STN SCISEARCH
ACCESSION NUMBER: 1994:777713 SCISEARCH
THE GENUINE ARTICLE: PU984
TITLE: DETERMINATION OF THE ACTIVE HYDROGEN CONTENT IN PYRIDINE-BORANE COMPLEX BY SCHIFF-BASE REDUCTION AND HIGH-PERFORMANCE LIQUID-CHROMATOGRAPHY

AUTHOR: MORLEY J A (Reprint); ERLOD L; BAUER J F
CORPORATE SOURCE: ABBOTT LABS, DEPT PHYS ANALYAT CHEM, PPD, 1401 SHERIDAN RD, N CHICAGO, IL 60664 (Reprint)

COUNTRY OF AUTHOR: USA
SOURCE: ANALYTICAL CHEMISTRY, (1 DEC 1994) Vol. 66, No. 23, pp. 4283-4287.
ISSN: 0003-2700.
AMER CHEMICAL SOC, 1155 16TH ST, NW, WASHINGTON, DC 20036

PUBLISHER: Article; Journal
DOCUMENT TYPE: PHYS-LIFE
FILE SEGMENT: PHYS-LIFE
LANGUAGE: English
REFERENCE COUNT: 24
ENTRY DATE: 1994

Entered STN: 1994 Last Updated STN: 1994 *ABSTRACT IS AVAILABLE IN THE ALL AND IAU FORMATS.
Borohydrides and borane complexes have been widely used as selective reducing agents in many chemical applications. In particular, the pyridine-borane complex (PBC, C5H5N-BH3) is very sensitive to hydrolysis and is an attractive reagent for large-scale reductions that are common in the pharmaceutical industry. This report describes a simple, rapid, and reproducible method for quantitating the active hydrogen content in PBC. The method exploits the ease with which Schiff bases are reduced by amine-boranes and uses high-performance liquid chromatography to quantitate the reductant product. The method is not affected by small amounts of extraneous moisture and can be carried out in common glassware. The potential application of the analytical procedure to other amine-borane complexes is also discussed.

L6 ANSWER 14 OF 17 SCISEARCH COPYRIGHT (c) 2007 The Thomson Full Text Corporation on STN SCISEARCH
ACCESSION NUMBER: 1991:454929 SCISEARCH
THE GENUINE ARTICLE: LN331
TITLE: INDIRECT DETERMINATION OF TETRAHYDROBORATE (BH4-) BY GAS-DIFFUSION FLOW-INJECTION ANALYSIS WITH AMPHROMETRIC DETECTION

AUTHOR: NIKOLIC S D (Reprint); MILOSAVLJEVIC E B; HENDRIX J L; NELSON J H
CORPORATE SOURCE: UNIV BELGRADE, FAC MED, POB 550, YU-11001 BELGRADE, YUGOSLAVIA; UNIV NEVADA, MACKAY SCH MINES, DEPT CHEM, RENO, NV 89557; UNIV NEVADA, MACKAY SCH MINES, DEPT MET ENG, RENO, NV 89557
COUNTRY OF AUTHOR: YUGOSLAVIA; USA
SOURCE: TALANTA, (AUG 1993) Vol. 40, No. 8, pp. 1283-1287.
ISSN: 0378-9140.
ELSEVIER SCIENCE BV, PO BOX 211, 1000 AE AMSTERDAM, NETHERLANDS.

PUBLISHER: Article; Journal
DOCUMENT TYPE: PHYS
FILE SEGMENT: PHYS
LANGUAGE: English
REFERENCE COUNT: 23
ENTRY DATE: 1994 Last Updated STN: 1994 *ABSTRACT IS AVAILABLE IN THE ALL AND IAU FORMATS.
A rapid, indirect gas-diffusion flow injection analysis (FIA) method with amperometric detection has been developed for the selective and sensitive determination of tetrahydrioborate (BH4-). The injected analyte

reduces arsenic(III) to arsine. The arsine formed diffuses through the PTFE (polytetrafluoroethylene) membrane and is quantified amperometrically at a platinum working electrode. The precision of the technique was better than a relative standard deviation of 2.1 % at 60 μ M levels and better than 0.5% at 0.1 mM, with a throughput of 60 samples/hr. The detection limit of the method was found to be 1 μ M (1.5 nM BH4-) with a linear range up to 1 mM. The dynamic range extends over five orders of magnitude in BH4- concentration. The effects of working potential, concentration of As(III) and HCl in the reagent stream, type and flow rate of the acceptor solution, temperature and interferences on the FIA signals were studied.

L6 ANSWER 15 OF 17 SCISEARCH COPYRIGHT (c) 2007 The Thomson

Full Text

Corporation on STN
ACCESSION NUMBER: 1992:47537 SCISEARCH
THE GENUINE ARTICLE: JG901

TITLE: BOROHYDRIDE OXIDATION AT A GOLD ELECTRODE
AUTHOR: MIRKIN M V (Reprint); YANG H J; BARD A J
UNIV TEXAS, DEPT CHEM & BIOCHEM, AUSTIN, TX 78712
(Reprint)

COUNTRY OF AUTHOR: USA
SOURCE: JOURNAL OF THE ELECTROCHEMICAL SOCIETY, (AUG 1992) Vol. 139, No. 8, pp. 2212-2217.
ISSN: 0013-4651

PUBLISHER: NO 08534. ELECTROCHEMICAL SOC INC, 10 SOUTH MAIN STREET, PENNINGTON,
Article: Journal

DOCUMENT TYPE: PHYS: ENGL
FILE SEGMENT: English
LANGUAGE: English
REFERENCE COUNT: 28
ENTRY DATE: 1994

L6 ANSWER 15 OF 17 SCISEARCH COPYRIGHT (c) 2007 The Thomson

Full Text

Corporation on STN
ACCESSION NUMBER: 1992:47537 SCISEARCH
THE GENUINE ARTICLE: JG901

TITLE: BOROHYDRIDE OXIDATION AT A GOLD ELECTRODE
AUTHOR: MIRKIN M V (Reprint); YANG H J; BARD A J
UNIV TEXAS, DEPT CHEM & BIOCHEM, AUSTIN, TX 78712
(Reprint)

COUNTRY OF AUTHOR: USA
SOURCE: JOURNAL OF THE ELECTROCHEMICAL SOCIETY, (AUG 1992) Vol. 139, No. 8, pp. 2212-2217.
ISSN: 0013-4651

PUBLISHER: NO 08534. ELECTROCHEMICAL SOC INC, 10 SOUTH MAIN STREET, PENNINGTON,
Article: Journal

DOCUMENT TYPE: PHYS: ENGL
FILE SEGMENT: English
LANGUAGE: English
REFERENCE COUNT: 28
ENTRY DATE: 1994

L6 ANSWER 15 OF 17 SCISEARCH COPYRIGHT (c) 2007 The Thomson

Full Text

Corporation on STN
ACCESSION NUMBER: 1992:47537 SCISEARCH
THE GENUINE ARTICLE: JG901

TITLE: BOROHYDRIDE OXIDATION AT A GOLD ELECTRODE
AUTHOR: MIRKIN M V (Reprint); YANG H J; BARD A J
UNIV TEXAS, DEPT CHEM & BIOCHEM, AUSTIN, TX 78712
(Reprint)

COUNTRY OF AUTHOR: USA
SOURCE: JOURNAL OF THE ELECTROCHEMICAL SOCIETY, (AUG 1992) Vol. 139, No. 8, pp. 2212-2217.
ISSN: 0013-4651

PUBLISHER: NO 08534. ELECTROCHEMICAL SOC INC, 10 SOUTH MAIN STREET, PENNINGTON,
Article: Journal

DOCUMENT TYPE: PHYS: ENGL
FILE SEGMENT: English
LANGUAGE: English
REFERENCE COUNT: 28
ENTRY DATE: 1994

L6 ANSWER 15 OF 17 SCISEARCH COPYRIGHT (c) 2007 The Thomson

Full Text

Corporation on STN
ACCESSION NUMBER: 1992:47537 SCISEARCH
THE GENUINE ARTICLE: JG901

TITLE: BOROHYDRIDE OXIDATION AT A GOLD ELECTRODE
AUTHOR: MIRKIN M V (Reprint); YANG H J; BARD A J
UNIV TEXAS, DEPT CHEM & BIOCHEM, AUSTIN, TX 78712
(Reprint)

COUNTRY OF AUTHOR: USA
SOURCE: JOURNAL OF THE ELECTROCHEMICAL SOCIETY, (AUG 1992) Vol. 139, No. 8, pp. 2212-2217.
ISSN: 0013-4651

PUBLISHER: NO 08534. ELECTROCHEMICAL SOC INC, 10 SOUTH MAIN STREET, PENNINGTON,
Article: Journal

DOCUMENT TYPE: PHYS: ENGL
FILE SEGMENT: English
LANGUAGE: English
REFERENCE COUNT: 28
ENTRY DATE: 1994

L6 ANSWER 15 OF 17 SCISEARCH COPYRIGHT (c) 2007 The Thomson

Full Text

Corporation on STN
ACCESSION NUMBER: 1992:47537 SCISEARCH
THE GENUINE ARTICLE: JG901

TITLE: BOROHYDRIDE OXIDATION AT A GOLD ELECTRODE
AUTHOR: MIRKIN M V (Reprint); YANG H J; BARD A J
UNIV TEXAS, DEPT CHEM & BIOCHEM, AUSTIN, TX 78712
(Reprint)

COUNTRY OF AUTHOR: USA
SOURCE: JOURNAL OF THE ELECTROCHEMICAL SOCIETY, (AUG 1992) Vol. 139, No. 8, pp. 2212-2217.
ISSN: 0013-4651

PUBLISHER: NO 08534. ELECTROCHEMICAL SOC INC, 10 SOUTH MAIN STREET, PENNINGTON,
Article: Journal

DOCUMENT TYPE: PHYS: ENGL
FILE SEGMENT: English
LANGUAGE: English
REFERENCE COUNT: 28
ENTRY DATE: 1994

L6 ANSWER 15 OF 17 SCISEARCH COPYRIGHT (c) 2007 The Thomson

Full Text

Corporation on STN
ACCESSION NUMBER: 1992:47537 SCISEARCH
THE GENUINE ARTICLE: JG901

TITLE: BOROHYDRIDE OXIDATION AT A GOLD ELECTRODE
AUTHOR: MIRKIN M V (Reprint); YANG H J; BARD A J
UNIV TEXAS, DEPT CHEM & BIOCHEM, AUSTIN, TX 78712
(Reprint)

COUNTRY OF AUTHOR: USA
SOURCE: JOURNAL OF THE ELECTROCHEMICAL SOCIETY, (AUG 1992) Vol. 139, No. 8, pp. 2212-2217.
ISSN: 0013-4651

PUBLISHER: NO 08534. ELECTROCHEMICAL SOC INC, 10 SOUTH MAIN STREET, PENNINGTON,
Article: Journal

DOCUMENT TYPE: PHYS: ENGL
FILE SEGMENT: English
LANGUAGE: English
REFERENCE COUNT: 28
ENTRY DATE: 1994

L6 ANSWER 17 OF 17 SCISEARCH COPYRIGHT (c) 2007 The Thomson

Full Text

Corporation on STN
ACCESSION NUMBER: 1991:400993 SCISEARCH

THE GENUINE ARTICLE: FW724
TITLE: DIRECT DETERMINATION OF DIFFUSION-COEFFICIENTS BY

CHRONAMPEROMETRY AT MICRODISK ELECTRODES

AUTHOR: DENHOLT G (Reprint); MIRKIN M

UNIV TEXAS, DEPT CHEM, AUSTIN, TX 78712

USA
CORPORATE SOURCE:
COUNTRY OF AUTHOR:
SOURCE:
308, No. 1-2, pp. 27-38.
ISSN: 0022-0728
ELSEVIER SCIENCE SA LAUSANNE, PO BOX 564, 1001 LAUSANNE 1,
SWITZERLAND.

PUBLISHER:
DOCUMENT TYPE:
FILE SEGMENT:
LANGUAGE:
REFERENCE COUNT:
ENTRY DATE:
Entered STN: 1994
Last Updated on STN: 1994

ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB The chronoamperometric response at a microdisk is used for the direct

determination of the diffusion coefficient of an electroactive species.

The method does not require knowledge of the bulk concentration and the

number of electrons participating in the electrode reaction, and requires

only a value for the disk radius. Subsequent determination of the number

of electrons (n) for an electrode reaction or the concentration of

electroactive species is also possible. This approach is demonstrated

with the evaluation of the diffusion coefficient of Fe(CN)64- in KCl and

that of borohydride ion in NaOH. In both cases, the values of n found

remained constant over a wide time range and correspond to those expected

for these processes.

=>

The multistage process of borohydride oxidation in an 8 e- reaction

on boride at a Au electrode has been studied by means of fast-scan cyclic

voltammetry (CV) and scanning electrochemical microscopy (SECM). The

total irreversibility of this process observed previously is shown to be a

result of the presence of very unstable intermediates. CV measurements

showed that at least two stages of the process are quasi-reversible, and

the presence of a couplet homogeneous chemical reaction was proved by

SECM. The rate constant for this reaction as well as the electrochemical

kinetic parameters for the first stage of oxidation are evaluated using

digital simulation. The adsorption of the electroactive species is

associated with the first two-electron stage of the oxidation becomes

apparent at scan rates higher than 200 V/s. A very small fractional

surface coverage (estimated to be less than 0.001) is shown to produce CV

waves characteristic of adsorption rather than diffusion-controlled

processes. The second chemical stage of this process is much faster than

the first. The oxidation of borohydride ion at a gold anode is shown to have

a different mechanism than that proposed earlier for platinum electrode.